

## PART A

**TIME: 15 minutes**

- Look at the four texts, A-D, in the separate Text Booklet.
- For each question, 1-20, look through the texts, A-D, to find the relevant information.
- Write your answers on the spaces provided in this Question Paper.
- Answer all the questions within the 15-minute time limit.
- Your answers should be correctly spelt.

### Text A

#### **Atrial fibrillation (AF)**

Atrial fibrillation (AF) is the most common cardiac arrhythmia. It affects >33 million individuals worldwide, and its prevalence is projected to double by 2050. AF is associated with a 5- and 2-fold increased risk of stroke and mortality, respectively. Furthermore, AF-related strokes are associated with higher morbidity, mortality, and health care costs compared with non-cardioembolic strokes.

The mainstay of stroke prevention remains oral anticoagulation (OAC), with vitamin K antagonists and more recently, direct oral anticoagulants (DOAC), reducing the risk of ischemic stroke and all-cause mortality in patients with AF. However, more than one-third of AF patients at high risk for stroke still fail to receive effective stroke prophylaxis in contemporary practice. Although the introduction of DOAC has overcome some of the limitations of warfarin therapy, persistent barriers including costs, ongoing bleeding risks with no reversal agent for most DOACs, noncompliance and high discontinuation rates may preclude a broader use of DOAC in clinical practice.

### Text B

The left atrial appendage (LAA) is a remnant of the embryonic left atrium and is considered the main reservoir for left atrial thrombi in >90% of patients with nonvalvular AF. In recent years, percutaneous LAA closure (LAAC) has rapidly grown worldwide as an appealing alternative for the prevention of thromboembolism in patients at high risk for stroke, with a specific focus on patients ineligible for OAC. While no specific recommendation on LAAC was given in the 2014 American guidelines, the 2016

European guidelines for the management of AF provided a class IIb recommendation for percutaneous LAAC in patients with AF and contraindications for long-term OAC, based on data from the PROTECT-AF and PREVAIL trials, the only LAAC randomized trials to date. Although none of these studies included patients ineligible for OAC, most of the real-world registries conducted to date have focused on this target population, which currently represents the majority of LAAC recipients. This review provides an updated overview of current transcatheter LAAC devices and reviews the main clinical data from LAAC randomized trials and registries, focusing on procedural and late outcomes, as well as on future directions.

## **Text C**

### **WATCHMAN and WATCHMAN FLX**

The WATCHMAN device (Boston Scientific, Natick, MA) was the second dedicated LAAC device and remains the only device studied in randomized clinical trials to date. It consists of a self-expanding nitinol 10-strut frame, with a 160 µm permeable polyethylene terephthalate membrane fabric cap facing the left atrium. The open distal end is fixed by 10 active fixation anchors in 1 row. The tool will be of different dimensions 21, 24, 27, 30, and 33 mm. The transseptal access sheath will have crucial specifications, and may show 14F with respect to width or breadth and is available in 3 different preformed curve shapes: anterior curve, double curve (used in >90% of procedures), and single curve. Three proximal radio-opaque markers correspond to the approximate level of deployment for 21, 27, and 33 device sizes, respectively.

## **Text D**

The transseptal puncture is performed under fluoroscopic and preferably transesophageal echocardiography (TEE; bicaval view followed by short-axis view) guidance in the inferoposterior portion of the fossa ovalis. After transseptal puncture, a long extra-stiff J tipped 0.035-inch wire is advanced into the left upper pulmonary vein and the transseptal sheath is exchanged over the wire for the access sheath. After removal of dilator and guidewire, a 5F to 6F pigtail catheter is advanced through the access sheath into the left upper pulmonary vein. By using TEE and fluoroscopic guidance, it will be easy to create some access. In the stage pertaining to it, access sheath and pigtail are adjusted as required. Appropriate WATCHMAN device sizing is determined by the maximum LAA ostium diameter (measured from the circumflex artery to 1-2 cm within the pulmonary

vein ridge at 0°, 45°, 90°, and 135°) and depth (from ostium to the tip of LAA). An oversizing of the device by 10 to 20 percent (corresponding to  $2\pm 4$  mm) is generally recommended. A fluoroscopic right ( $20^\circ\pm 30^\circ$ ) and caudal ( $20^\circ\pm 30^\circ$ ) projection, which usually opens the mid-distal portion of the LAA is the preferred one for the deployment of the WATCHMAN device. After accurate LAA assessment, the delivery system is advanced into the access sheath until the distal markers of the delivery catheter and the access sheath align. The device is then deployed with a slow unsheathing movement.

### Questions 1-7

For each question, 1-7, decide which text (A, B, C or D) the information comes from. You may use any letter more than once.

In which text can you find information about;

1 Used for accessing the left side of the heart.

Answer \_\_\_\_\_

2 Functioning of the device.

Answer \_\_\_\_\_

3 A comparison with another disease.

Answer \_\_\_\_\_

4 A drug that helps with blocking and managing the disease condition.

Answer \_\_\_\_\_

5 Structure of the device.

Answer \_\_\_\_\_

6 Made, done, or effected through the skin.

Answer \_\_\_\_\_

7 Details about LAA imaging and LAAC closure techniques are simply beyond the study performed.

Answer \_\_\_\_\_

### **Questions 8-14**

Answer each of the questions, 8-14, with a word or short phrase from one of the texts. Each answer may include words, numbers or both.

8 What is generally recommended with respect to device sizing?

Answer \_\_\_\_\_

9 When will the catheter be introduced into the left upper pulmonary vein?

Answer \_\_\_\_\_

10 In how many sizes, the WATCHMAN device is available?

Answer \_\_\_\_\_

11 What will be the outer diameter of the transseptal access sheath?

Answer \_\_\_\_\_

12 What is recommended for the effective use of the Watchman Device?

Answer \_\_\_\_\_

13 What is taken into account to measure the size of the device?

Answer \_\_\_\_\_

14 What is the study more focused on?

Answer \_\_\_\_\_

### Questions 15-20

Complete each of the sentences, 15-20, with a word or short phrase from one of the texts. Each answer may include words, numbers or both.

15 The best defending procedure is more connected to the use of the \_\_\_\_\_.

16 All three \_\_\_\_\_ are needed to be adjusted as per the levels of the device deployed.

17 With \_\_\_\_\_ access sheath is rightly repositioned into the LAA.

18 With DOAC being introduced, the scope for the \_\_\_\_\_ enhanced more.

19 The recommended oversizing of the device is in range of \_\_\_\_\_.

20 In its final stage, the device will be deployed with

## PART B

In this part of the test, there are six short extracts relating to the work of health professionals. For questions 1-6, choose the answer (A, B or C) which you think fits best according to the text.

### Questions 1-6

1 As per the given notice, one of the major duties include;

A Care professional will have to look for ways to stop bleeding.

B It is important to maintain hemodynamic stability.

C Support cardiac function and circulation.

### Nursing care of the heart transplant patient

Nursing care of the heart transplant patient is similar to the care of any cardiac surgery patient. Bleeding is a major concern in the early postoperative period. Chest tube drainage is frequently monitored (initially every 15 minutes), as are the cardiac output, pulmonary artery pressures, and CVP. Cardiac tamponade can develop, presenting as either a sudden event or a gradual process. Chest tubes are gently milked (not stripped) as needed to maintain patency. Atrial dysrhythmias are relatively common following cardiac transplant. Temporary pacing wires are placed during surgery because surgical manipulation or postoperative swelling may disrupt the conduction system. Hypothermia is induced during surgery; postoperatively, the patient is gradually re-warmed over a 1- to 2-hour period. Cardiac function is impaired in up to 50% of transplanted hearts during the early postoperative period. Inotropic agents such as low-dose dopamine, dobutamine, or milrinone may be required to bring more stability.

## 2 The given notice explains;

A Why medical professionals shall join the conference?

B What medical professionals will learn?

C How this is different from others.

### **Cardiology Conference**

With people from around the world focused on getting some answers concerning Cardiology, this is your single most obvious opportunity to accomplish the greatest accumulation of individuals from the mending focuses, Universities, bunch, etc. This Cardiology conference rather European Cardiology Congress in 2017 will coordinate appears, disperse information, meet with recurring pattern and potential investigators and get name affirmation at this 3-day event. Broadly acclaimed speakers, the most recent frameworks, methodologies, and the most current updates in Cardiology field are indications of this conference. This World Cardiology Congress will help in frameworks organization, B2B uniting amidst specialists and academicians.

### 3 The major result of the changes mention is

- A inability to see / blindness
- B ineffective accommodation and depth perception
- C extra sensitivity to glare and dry eyes

#### **With Age Comes Weakness**

The eyelids become lax with the rotation of lid margins as result flow of tear may be disrupted. The production of tear from the lachrymal glands may decline to make the eyes dry and burning. There may be an accumulation of fluid in the cornea turning it hazy. The muscles of iris are weak and the lens capsule becomes stiff making it difficult to see small objects and depth perception accurately. The lens protein gets denatured and solidifies. The anterior aspect of the uveal tract degenerates along with degeneration of important areas in the retina.

4 The given notice talks about;

A Complications involved in DVT.

B Symptoms that lead to major problems.

C Result of the disease conditions.

## **DVT**

The problem occurs when a part of the clot breaks off and travels through the bloodstream to the lungs, causing a blockage called pulmonary embolism (PE). If the clot is small, and with appropriate treatment, people can recover from PE. However, there could be some damage to the lungs. If the clot is large, it can stop blood from reaching the lungs and is fatal. In addition, nearly one-third of people who have a DVT will have long-term problems caused by the damage the clot does to the valves in the vein called post-thrombotic syndrome (PTS). People with PTS have symptoms such as swelling, pain, discoloration, and in severe cases, scaling or ulcers in the affected part of the body. In some cases, the symptoms can be so severe that a person becomes disabled.

5 According to the information given, what is correct?

A Only 40% of the household could have afforded the medications.

B 33% of households in lower middle-income countries managed to have used the medications.

C 25% of households in upper middle-income countries got access to medications.

### **Medication Survey**

In a survey of 598 communities in 18 countries, the availability of aspirin,  $\beta$ -blockers, ACEIs, and statins varied widely. In the low-income countries, only 1 of 30 rural and only 25 of 32 urban communities had all 4 medications available. The 4 medications were potentially unaffordable for 60% of households in low-income countries.

Availability rose to 37% (rural) and 62% (urban) in lower middle-income countries and 73% (rural) and 80% (urban) in upper middle-income countries. Effective strategies for delivering medications are being developed for LMIC where health system infrastructure is underdeveloped.

6 The given notice talks about;

A Bidil dosage use.

B Effectiveness of BiDil in treating heart failure.

C how it helped the community.

### **BiDil - Support Blacks**

BiDil for in African Americans BiDil, a fixed-dose combination of two vasodilators (hydralazine and isosorbide), is indicated as an adjunctive treatment in African Americans with heart failure. It has been shown to reduce symptoms, decrease the number of hospitalizations, and prolong life in Blacks. The recommended dose is one to two tablets three times per day, although the dose may be as low as 1/2 tablet three times a day if side effects are intolerable. The approval of this combination drug has raised the ethical issue of race-specific FDA approval.

## PART C

In this part of the test, there are two texts about different aspects of healthcare. For questions 7-22, choose the answer (A, B, C or D) which you think fits best according to the text.

### **Text 1: What is Zika?**

The Zika virus disease is caused by the Zika virus, which is spread to people primarily through the bite of an infected mosquito (*aedes aegypti* and *aedes albopictus*). The illness is usually mild with symptoms lasting up to a week, and many people do not have symptoms or will have only mild symptoms. However, a Zika virus infection during pregnancy can cause a serious birth defect called microcephaly and other severe brain defects.

Zika is spread to people primarily through the bite of an infected *aedes* species mosquito (*aedes aegypti* and *aedes albopictus*). A pregnant woman can pass Zika to her fetus during pregnancy or around the time of birth. Also, a person with Zika can pass it to his or her sexual partners. We encourage people, who have traveled to or live in places with Zika to protect themselves by preventing mosquito bites and sexual transmission of Zika.

Many people infected with Zika will have no symptoms or mild symptoms that last several days to a week. However, a Zika infection during pregnancy can cause a serious birth defect called microcephaly and other severe fetal brain defects. Current research suggests that Guillain-Barre syndrome (GBS), an uncommon sickness of the nervous system, is strongly associated with Zika; however, only a small proportion of people with a recent Zika virus infection get GBS. Once someone has been infected with Zika, it's very likely they'll be protected from future infections. There is no evidence that past Zika infection poses an increased risk of birth defects in future pregnancies.

Going to places where Zika is common is often not recommended. Travellers who go to places with outbreaks of Zika may or may not get infected with Zika. Moreover, in pregnant women, if the virus is caught from such places, it can cause microcephaly and other severe fetal brain defects.

Any pregnant women who have recently travelled to an area with Zika should talk to their doctor about their travel, even if they don't feel sick. Pregnant women should see a doctor if they have any Zika symptoms during their trip or within 2 weeks after travelling. All pregnant women can protect themselves by using plenty of prevention measures, which include but are not limited to: avoiding travel to an area with Zika; preventing mosquito bites; and following recommended precautions against getting Zika. The most common symptoms of the Zika virus disease are fever, rashes, joint pain, and red eyes. Other symptoms include muscle pain and headaches. Many people infected with Zika won't have symptoms or will have mild symptoms, which can last for several days to a week.

Currently, there is no evidence that a woman who has recovered from the Zika virus infection (the virus has cleared her body) will have Zika-related pregnancy complications in the future. Based on information about similar infections, once a person has been infected with the Zika virus and has cleared the virus, he or she is likely to be protected from future Zika infections. If you're thinking about having a baby in the near future and you or your partner live in or travelled to an area with Zika, talk with your doctor or another healthcare provider. Men who have travelled to any areas with Zika or who have had a Zika infection should wait at least 6 months after travel (or 6 months after symptoms started if they get sick) before trying to conceive with their partner. Women should wait at least 8 weeks after travel (or 8 weeks after symptoms started if they get sick) before trying to get pregnant.

### **Text 1: Questions 7-14**

7 According to paragraph 1, the Zika virus disease is;

- A Common
- B Uncommon
- C Severe disease
- D Without any symptoms

8 What does paragraph 2 indicate?

- A How does Zika spread from person to person
- B Modes of transmission of Zika
- C How do people get infected with Zika?
- D A & C

9 What is mentioned in paragraph 3?

- A How do people get infected with Zika?
- B What health problems can result from getting Zika?
- C How microcephaly occurs.
- D Microcephaly and birth defects.

10 According to paragraph 5, what is recommended for pregnant women?

- A They should not travel to places where the Zika virus is common.
- B They should talk to their partner before going to Zika-infected places.
- C They should inform their doctor before travelling.
- D Not given

11 In paragraph 5, how many methods of prevention from Zika are described?

- A Plenty of prevention measures
- B 2
- C 3
- D 4

12 Can a person who is completely recovered from Zika virus infection, get Zika infection again?

- A. Yes
- B. No
- C. Depends from person to person
- D. Not given

13 According to paragraph 6, which one of the following statements is true?

- A A woman`s future pregnancies will be at risk if she is infected with the Zika virus.
- B There is no evidence that infected women will not face any complications in future pregnancies.
- C Any woman who is infected with Zika is advised to wait for six months before getting pregnant.
- D B & C

14 According to paragraph 6, which of the following is not true?

- A A woman should wait for six months before they get pregnant if they have traveled to any places with the Zika virus.
- B If the woman has been infected with the Zika virus and has cleared the virus, she is likely to be protected from future Zika infections.
- C In most of the cases, Zika complications may occur in future pregnancies.
- D All above statements are true.

**Text 2: Avian Influenza - A Virus Infections in Humans**

Although avian influenza A viruses usually do not infect humans, rare cases of human infection with these viruses have been reported. Infected birds shed the avian influenza virus in their saliva, mucus and feces. Human infections with bird flu viruses can happen when enough of the virus gets into a person's eyes, nose or mouth, or is inhaled. This can happen when the virus is in the air (in droplets or possibly dust) and a person breathes it in, or when a person touches something that has the virus on it and then touches their mouth, eyes or nose. Rare human infections with some avian viruses have occurred most often after unprotected contact with infected birds or surfaces contaminated with avian influenza viruses. However, some infections have been identified where direct contact was not known to have occurred.

The reported signs and symptoms of low pathogenic avian influenza (LPAI) A virus infections in humans have ranged from conjunctivitis to influenza-like illness (e.g., fever, cough, sore throat, muscle aches) to lower respiratory disease (pneumonia) requiring hospitalization. Highly pathogenic avian influenza (HPAI) LPAI H7N9 and HPAI Asian H5N1 have been responsible for most human illness worldwide to date, including the most serious illnesses and deaths. A virus infections in people have been associated with a wide range of illness from conjunctivitis only to severe respiratory illness (e.g. shortness of breath, difficulty breathing, pneumonia, acute respiratory distress, viral pneumonia, respiratory failure) with multi-organ disease, sometimes accompanied by nausea, abdominal pain, diarrhea, vomiting and sometimes neurologic changes (altered mental status, seizures).

Detection of the avian influenza A virus infection in humans is a formidable process. It may be difficult to assess the presence of the virus by clinical signs and symptoms alone; laboratory testing is required. The avian influenza A virus infection is usually diagnosed by collecting a swab from the nose or throat of the sick person during the first few days of illness. This specimen is sent to a lab; the laboratory looks for the avian influenza A virus either by using a molecular test, by trying to grow the virus, or both. (growing avian influenza A viruses should only be done in laboratories with high levels of protection). For critically ill patients, collection and testing of lower respiratory tract specimens may lead to a diagnosis of avian influenza virus infection. For some patients who are no longer very sick or who have fully recovered, it may be difficult to find the avian influenza A virus in the specimen, using these methods. It is often termed a problem of

gargantuan proportion. Sometimes it may still be possible to diagnose the avian influenza A virus infection by looking for evidence of the body's immune response to the virus infection by detecting specific antibodies the body has produced in response to the virus. This is not always an option because it requires two blood specimens (one taken during the first week of the illness and another taken 3-4 weeks later).

Analyses of available avian influenza viruses circulating worldwide suggest that most viruses are susceptible to oseltamivir, peramivir, and zanamivir. However, some evidence of antiviral resistance has been reported in HPAI Asian H5N1 viruses and influenza A H7N9 viruses isolated from some human cases. Monitoring for antiviral resistance among avian influenza A viruses is crucial and ongoing. This data directly informs WHO antiviral treatment recommendations.

The best way to prevent an infection of the avian influenza A virus is to avoid sources of exposure. Most human infections with avian influenza A viruses have occurred following direct or close contact with infected poultry. People who have had contact with infected birds may be given expert-formulated influenza antiviral drugs preventatively. While antiviral drugs are most often used to treat flu, they can also be used to prevent infection in someone who has been exposed to influenza viruses. When used to prevent seasonal influenza, antiviral drugs are 70% to 90% effective. A seasonal influenza vaccination will not prevent infection with avian influenza A viruses, but can play hardball in effectively reducing the risk of co-infection with human and avian influenza A viruses. It's also possible to make a vaccine intellectually that can protect people against avian influenza viruses. For example, the United States government always have access to the stockpiled vaccine to protect against avian influenza A H5N1 vaccine. The stockpiled vaccine could be used if a similar H5N1 virus were to begin transmitting easily from person to person. Creating a candidate vaccine virus is the first step in producing a vaccine.

**Text 2: Questions 15-22**

15 According to paragraph 1, the virus enters the human body through.

- A The nose
- B The eyes
- C The mouth
- D Contact with an infected bird

16 According to paragraph 1, human infection with avian influenza A virus is;

- A Uncommon
- B Common
- C Rare
- D Frequent in infected places

17 According to paragraph 2, people may suffer from flu if they have been infected by

- A LPAI
- B HPAI
- C H5N1
- D LPAI H7N9

18 According to paragraph 3, what is not true?

A A molecular test is performed to see the presence of the virus in the collected specimen.

B Lab tests are aimed at growing the virus for the right detection purpose.

C A specimen for testing is usually collected right after the person gets the illness by infection.

D People who have recovered from the illness should also be diagnosed for further confirmation.

19 According to paragraph 3, the word "gargantuan" may mean;

A Small-scale

B Trivial

C Very large

D Pint-sized

20 Which central idea is presented in paragraph 4?

A Treatment of the avian influenza disease.

B Effective medications for the viral disease.

C Research on effective medicine for the avian virus disease.

D None of the above.

21 According to paragraph 5, which word may give the meaning of experience?

A Exposure

B Expert

C Intellectualism

D None of the above

22 The phrase "to play hardball" in paragraph 5 may mean;

A To be able to achieve the results.

B To do what it takes to complete the task.

C To work effectively.

D To be firm and determined in order to get what you want.